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ABSTRACT

To investigate the relationships between television watching, spare time reading, homework, and scholastic achievement, the National Assessment of Educational Progress gathered data on television viewing habits. Younger students were more avid viewers than older ones. Half the 9-year olds watched over 3 hours of television daily; most 13-year-olds watched one to two or three to four hours daily; among 17-year-olds, 38 percent watched less than an hour a day. Television has a differential relationship to reading achievement at different ages. Over 4 hours of daily watching proved detrimental at all ages. Highest reading performance was typically associated with one to two hours of spare time reading and three to four hours of television for 9-year-olds, one to two hours of television for 13-year-olds and under an hour of television for 17-year-olds. For 13-year-olds, one to two hours of television and one to two hours of homework a day were associated with highest levels of reading performance. Only for 17-year-olds did television have a direct negative relationship to reading performance. Spare time reading and television do not appear to compete for students' time; television and homework may compete for some students' time. Primary type of information provided by report: Procedures (Analysis). (BW)

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# The Relationship of Students' Academic Achievement to Television Watching, Leisure Time Reading and Homework

by

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## CHAPTER 1

### Introduction

Although a television set is a fixture in almost every household in the United States, controversy over television's influence continues to rage. The controversy most often centers on a highly impressionable segment of the population -- our children -- with widely varying opinions propounded regarding television's impact on children's personalities, propensity to violence and academic achievement.

It is difficult to observe the effect of television in isolation, since no similar group of nontelevision watchers exists for comparisons. Many studies of television viewers have of necessity focused on small samples of people or relatively limited aspects of their behavior. A broader picture has been provided by data from several state educational assessment programs, which have gathered data on students' television watching behaviors and their relationship to academic achievement. While not isolating the effects of television, these studies give important clues about the relationships between television watching and scholastic achievement.

To enlarge upon such information, the National Assessment of Educational Progress (NAEP) gathered data on the television viewing habits of 9-, 13- and 17-year-olds across the country during its 1979-80 assessment of reading skills. These data provide information on the amount of television watched by different groups of students and allow comparisons of reading skills and television watching. The study also surveyed amounts of homework and leisure time reading done, permitting analysis of relationships among these activities, television watching and reading ability. These analyses give a hint as to whether television watching supplants these other, more scholastically oriented activities and examine relationships between such activities and reading skills.

National Assessment periodically surveys the educational achievements of American 9-, 13- and 17-year-olds in a variety of subject areas, monitoring achievement levels and reporting any significant changes in these levels over time. Appendix A provides information about the National Assessment data base and its limitations.

## A Look at Other Studies

To place the National Assessment data in a context, it will first be useful to review results from other studies. Virtually no one in the United States is a television isolate. By 1979, some 98% of households had a television set (U.S. Bureau of the Census 1982). The average viewer watches from six to seven hours of television daily (Comstock, et al. 1978). Comstock reports that children aged 2-11 watch an average of 3.9 hours per day; teenagers average 3.1 viewing hours a day.

The California state assessment (California Department of Education 1982) similarly found high viewing levels for younger children; data gathered during the spring of 1981 show that 35 percent of the state's sixth graders watched four or more hours of television a day. Television viewing appeared to be related to socioeconomic status with those in the lower socioeconomic groups watching more television.

Many studies also find a negative association between academic achievement and hours of television watched -- that is, those who watch more television tend to do less well in school (Hornik 1981). The California study (1982) found that in general the more time spent watching television, the lower sixth-graders' achievement in reading, writing and mathematics. A previous National Assessment survey of 17-year-olds' mathematics skills found lower mathematics achievement among those who watched more television (National Assessment of Educational Progress 1978).

However, when socioeconomic status and intelligence (IQ) are statistically controlled, variations by amount of television watched are often erased (Hornik 1981). Neuman (1980), in her review of research, similarly supports the contention that when IQ and socioeconomic status are statistically controlled, television is not a significant factor in predicting reading achievement. Some studies have found that effects do remain in the areas of reading comprehension and language usage (Morgan 1982).

Studies generally confirm that television does not interfere in any substantial way with the reading of books or achievement in reading (Childers and Ross 1973, Quissenberry and Klasek 1974, Neuman 1980, Starkey and Swinford 1974). Witty (1967), in a survey of media behavior from 1949 to 1965, found that the number of books read by children remained unaffected by the increasing amount of television viewed.

Television may prove more injurious to higher than lower achieving students. The California assessment data showed a steeper achievement decline with increased television viewing for sixth-graders in higher socioeconomic categories, while students in lower socioeconomic groups showed some gains in achievement as television viewing increased up to three hours a day. After that, achievement declined for these groups as well.

A New Jersey study of sixth through ninth graders (Morgan 1982) found especially strong negative associations between increased television viewing time and academic achievement for high IQ students. Conversely, it found some positive associations for lower IQ students. Morgan postulates that heavy viewing may "damage" most those who might otherwise be high achievers. For lower-

achieving students, television viewing may serve to raise performance rather than having a detrimental impact.

In summary, research findings are not a blanket indictment of television as a negative influence. Television viewing does appear to be, overall, negatively associated with academic achievement -- children who watch more television generally tend to do less well academically. It must be remembered that the amount of television watched varies among population groups, with children from lower socioeconomic status groups watching more. When socioeconomic status and IQ are controlled, variations in achievement by amount of television watched become smaller.

Television may have a differential effect for high and low achieving students. Achievement for high achieving students typically falls off more sharply as television viewing increases, while for low achieving students more television, at least to a point, seems to improve or at least not harm academic performance.

## National Assessment Findings

A common expectation appears to be that television is a negative influence on children. Winn, in her book The Plug-In Drug (1977), makes a strong case for this point of view. However, such a conclusion is not uniformly supported by other research or by the NAEP data.

The National Assessment findings add a dimension to other studies inasmuch as they describe patterns for students at three ages -- students at very different points in their lives. The NAEP data suggest that age is a major factor in determining how much television students watch and how their television watching interacts with reading skills.

For younger students, reading performance improves as amount of television watched increases up to more than four hours daily. Highest reading performance levels for 9-year-olds are associated with three to four hours of television viewing. As students become older, the beneficial effects of television appear to decrease. By age 17, television bears the popularly expected negative association with academic achievement, that is, as time spent watching television increases, reading achievement levels go down.

Television also appears to have a differential effect for students in different socioeconomic status groups. At each age, students from groups typically considered disadvantaged tend to watch more television. Higher performance levels for these groups tend to be associated with somewhat higher levels of television watching than the national averages. Achievement falls off more rapidly with increased television viewing for students from more advantaged circumstances.

Television may serve to provide external stimulation that younger children and members of disadvantaged groups are less likely to obtain on their own. Television may provide certain levels of information and language that broaden these students' awareness of their environment and expand their vocabularies.

However, for older or more advantaged students television watching may interfere with time available for reading, homework and other activities.

Following are specific highlights from the National Assessment survey.

- o Time spent watching television declines with age -- younger students are much more avid television viewers than older ones. Fully one quarter of the 9-year-olds watch more than four hours of television a day, and another fourth watch three to four hours. A shift is evident by age 13, with 17 percent of the 13-year-olds watching over four hours and 31 percent viewing three to four hours a day. Among 17-year-olds, television viewing drops sharply; 38 percent watch less than one hour a day and 8 percent view more than four hours.

- o Students at each age who watch over four hours of television daily display the poorest reading skills. Beyond that, the relationship of television watching and academic achievement depends heavily on the age of the students. Among 9-year-olds, reading performance improves as amount of television viewing increases up to three to four hours of television a day. Thirteen-year-olds' reading achievement peaks with one to two hours of television watching and drops off with greater viewing. Only for 17-year-olds is there a direct negative association between reading achievement and hours of television watched. Seventeen-year-olds who watch the least television are the best readers, and performance steadily declines with increased amounts of television viewing.

- o At all ages, males watch more television than females. Members of groups typically considered disadvantaged, including residents of disadvantaged-urban areas, Blacks and those whose parents have lesser amounts of education, tend to watch more television than the national average.

- o Students from advantaged groups tend to exhibit television watching patterns of students older than themselves (that is, watching less television than average), while those from disadvantaged groups often display patterns characteristic of younger students (that is, watching more television than the average for their age group).

- o Disadvantaged youngsters tend to exhibit achievement patterns of students younger than themselves, that is, higher than average levels of television viewing continue to benefit their performance as they become older. Advantaged youngsters, on the other hand, demonstrate achievement patterns like those of students older than themselves. Higher reading performance is associated with less television watching than the national average for pupils from advantaged groups.

- o Spare time reading is most popular with 9-year-olds and less frequently indulged in by 13- and 17-year-olds. Forty percent of 9-year-olds read for a hour or more a day compared with 26 percent of the 13-year-olds and 24 percent of the 17-year-olds.

- o One to two hours of spare time reading appears associated with highest reading performance within each category of television watching time. Thus, moderate amounts of spare time reading do appear to have a favorable

impact on reading skills. Highest reading performance levels occur among groups that combine one to two hours of reading with what appears to be the optimal amount of television for their age group -- three to four hours for 9-year-olds, one to two hours of 13-year-olds and under an hour for 17-year-olds.

- Homework is not high on the list of teenagers' activities. About a third of the 13- and 17-year-olds do homework for an hour or more a day; 36 percent of the 13-year-olds and 44 percent of the 17-year-olds either had no homework assigned the previous day or did not do their assignments.

- For 17-year-olds, reading performance increases as amount of time spent on homework increases, with those doing over two hours of homework showing the highest performance. Among 13-year-olds, the highest reading ability is seen among those doing one to two hours of homework a day. When homework and television watching are examined together, 17-year-olds display the highest performance when watching little (under an hour) or no television and doing more than two hours of homework, while 13-year-olds appear to do best with moderate amounts (one to two hours) of each.

- Students who watch TV extensively and also report spending a great deal of time doing spare-time reading or homework are among the poorest readers. Since the hours in a day are limited, the results suggest that these students may be watching television and reading or doing homework at the same time, or they may have misperceptions of the time actually spent in various activities. Also exhibiting lower performance levels are teenagers who watch excessive amounts of television (over four hours) and either do not do their homework or have no homework assigned.

## CHAPTER 2

### Differences in Television Viewing Patterns

To determine students' television viewing habits, National Assessment asked 9-, 13- and 17-year-olds in the assessment sample how many hours of television they had watched the previous day. Across the entire sample, these data will give an accurate estimate of average television viewing time. Amounts of television watched were categorized as follows: 1) under an hour, 2) one to two hours, 3) three to four hours and 4) over four hours.

Striking differences were apparent in viewing habits across age levels (Figure 1). Younger students were much more avid viewers than older ones. Half of the 9-year-olds watched over three hours of television daily, and one-quarter viewed over four hours. By age 13, the tide began to turn, with most 13-year-olds watching either one to two or three to four hours a day. Among 17-year-olds, television dropped sharply in popularity — as viewing hours increased numbers of 17-year-olds in front of a television set steadily decreased. The largest group (38 percent) watched less than an hour of television a day and only 8 percent viewed more than four hours. Table 1 amplifies the information in Figure 1, giving exact percentages of students at each age watching various amounts of television.

FIGURE 1

Percentages of 9-, 13- and 17-year-olds watching various amounts of television.

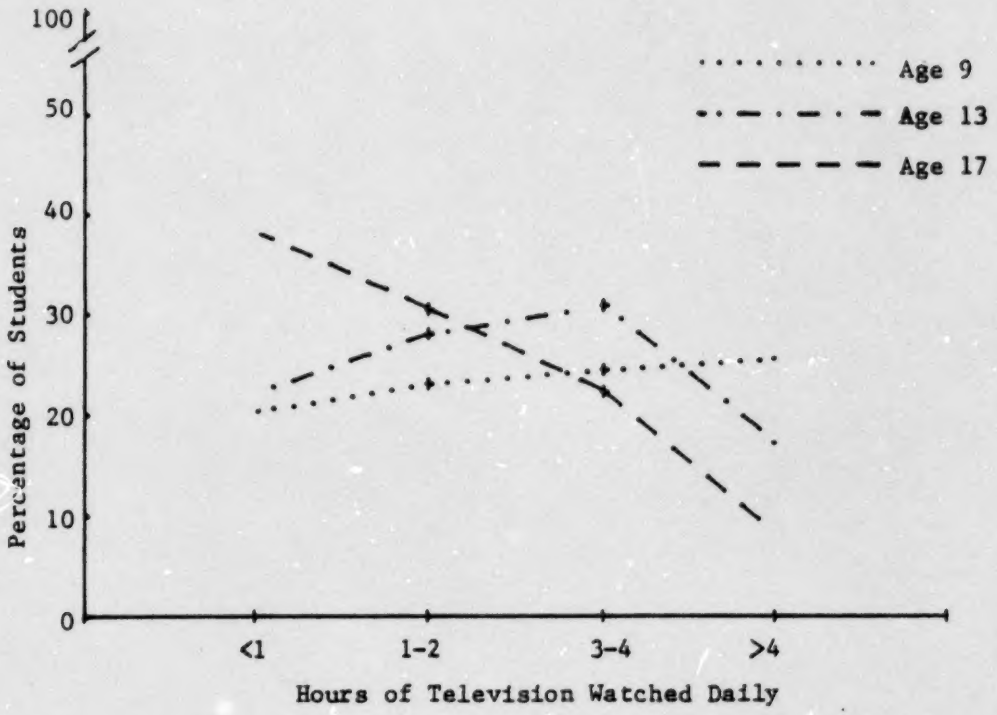


TABLE I: Percentages of 9-, 13- and 17-year-olds watching various amounts of television.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | 20.4% | 23.1% | 24.5% | 25.6% | 6.4% |
| Age 13 | 22.2 | 28.1 | 30.9 | 17.3 | 1.5 |
| Age 17 | 38.2 | 30.5 | 22.3 | 8.2 | 0.8 |

*No response to the question.

## Background Characteristics

Analyses of data for different population groups showed considerable variation in amounts of television viewing. Television viewing patterns for population variables reported upon by National Assessment -- sex, region of the country, type of community, level of parental education, race/ethnicity, grade in school and achievement categories -- are described below. Definitions of population groups appear in Appendix B.

Tables show percentages for each population group listed. For example, the percentages for males indicate the percentage of males watching various amounts of television. Figures for males refer only to the percentage of males; similarly, percentages for females indicate the percentage of females. Reading across the tables, percentages will total approximately 100 percent (with variations because of rounding). Percentages reading down the tables should be used for comparisons, and, of course, will not total 100 percent.

### Sex

At all ages surveyed, females tended to watch less television than males (Table 2). The difference may be in part accounted for by the facts that females at all ages did more leisure time reading than males and teenaged females did more homework than males (see Chapter 4). It appears that the sexes choose to allocate their spare time activities differently.

TABLE 2: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by sex.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Male | 19.4% | 21.5% | 24.1% | 27.1% | 8.0% |
| Female | 21.5 | 24.7 | 24.9 | 24.0 | 4.9 |
| Age 13 | | | | | |
| Male | 19.5 | 26.6 | 33.0 | 19.0 | 1.8 |
| Female | 24.9 | 29.5 | 28.8 | 15.7 | 1.2 |
| Age 17 | | | | | |
| Male | 34.7 | 31.6 | 24.1 | 8.7 | 1.0 |
| Female | 41.6 | 29.5 | 20.5 | 7.6 | 0.7 |

*No response to the question.

**Region of the Country**

Young people's viewing patterns were much the same across the country (Table 3). In the only noteworthy variations, students from the West at all three ages were most likely to watch under an hour of television a day; teenagers from the Southeast were somewhat more likely than other groups to watch over four hours of television daily.

TABLE 3: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by region of the country.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Northeast | 18.8% | 23.8% | 25.3% | 27.6% | 4.6% |
| Southeast | 21.3 | 23.1 | 23.0 | 25.4 | 7.2 |
| Central | 18.0 | 23.6 | 26.8 | 26.6 | 5.0 |
| West | 23.4 | 22.0 | 23.0 | 23.1 | 8.5 |
| Age 13 | | | | | |
| Northeast | 19.2 | 28.4 | 32.0 | 18.8 | 1.6 |
| Southeast | 20.8 | 26.7 | 31.0 | 19.4 | 2.0 |
| Central | 22.4 | 30.0 | 31.4 | 15.3 | 0.9 |
| West | 26.3 | 27.2 | 29.2 | 16.0 | 1.4 |
| Age 17 | | | | | |
| Northeast | 35.9 | 32.8 | 23.0 | 7.7 | 0.6 |
| Southeast | 34.6 | 28.8 | 24.8 | 11.0 | 0.7 |
| Central | 38.6 | 30.9 | 21.9 | 7.8 | 0.8 |
| West | 42.6 | 29.8 | 19.9 | 6.4 | 1.3 |

*No response to the question.

**Type of Community**

National Assessment does not obtain direct measures of socioeconomic status; however, type of community can be used as one indicator of socioeconomic levels. As in other research studies, National Assessment found that students from less advantaged environments tended to watch greater amounts of television than those from more advantaged surroundings. As Table 4 shows, children living in disadvantaged-urban areas were more prone to watch over four hours of television regardless of age.

Television viewing tapered off at an earlier age for advantaged-urban students, with patterns of television watching for advantaged-urban 9-year-olds similar to those for 13-year-olds nationwide. Patterns for disadvantaged-urban 13-year-olds, in contrast, were more like those of 9-year-olds nationally. Disadvantaged-urban students do not appear to reduce their television viewing time as early as others, while advantaged-urban children are in advance of their peers. One explanation may be that advantaged-urban children simply have more options in their environment to fill their leisure time -- from dancing classes to Little League -- while disavantaged-urban residents do not have these opportunities. Patterns for rural children are similar to the nation as a whole at age 9; rural teenagers watch only slightly more television than national averages.

TABLE 4: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by type of community.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Rural | 18.9% | 25.6% | 24.8% | 24.0% | 6.6% |
| Disad. urban | 17.9 | 16.0 | 17.1 | 33.2 | 15.8 |
| Advan. urban | 27.2 | 27.? | 25.9 | 17.4 | 2.3 |
| Age 13 | | | | | |
| Rural | 21.6 | 24.8 | 32.2 | 18.6 | 2.7 |
| Disad. urban | 19.0 | 22.9 | 30.1 | 25.9 | 2.0 |
| Advan. urban | 29.4 | 33.1 | 26.3 | 10.1 | 1.2 |
| Age 17 | | | | | |
| Rural | 33.5 | 31.8 | 25.2 | 9.3 | 0.2 |
| Disad. urban | 31.4 | 28.9 | 25.7 | 12.8 | 1.1 |
| Advan. urban | 45.8 | 31.7 | 17.1 | 4.3 | 1.0 |

*No response to question.

**Parental Education**

Like type of community, parental education can be used as a rough indicator of socioeconomic status. Results for this variable bear out findings for type of community — those from lower socioeconomic status levels tend to watch more television (Table 5). In general, the higher the educational attainment of parents, the less television their children tended to watch. This pattern was not uniformly true for 9-year-olds, probably because some 9-year-olds were vague on the extent of their parents' education beyond high school. Those whose parents had least education were most likely to watch television extensively.

TABLE 5: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by level of parental education.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Not grad. H.S. | 17.4% | 20.3% | 20.3% | 28.4% | 13.6% |
| Grad. H.S. | 16.8 | 22.4 | 27.5 | 27.7 | 5.6 |
| Some post H.S. | 19.5 | 24.5 | 25.6 | 25.4 | 4.8 |
| College grad. | 22.3 | 24.2 | 24.5 | 23.5 | 5.6 |
| Age 13 | | | | | |
| Not grad. H.S. | 18.3 | 23.0 | 33.8 | 23.6 | 1.4 |
| Grad. H.S. | 19.2 | 26.7 | 34.4 | 18.6 | 1.2 |
| Some post H.S. | 22.1 | 29.1 | 31.8 | 15.9 | 1.1 |
| College grad. | 26.0 | 31.3 | 27.7 | 13.6 | 1.5 |
| Age 17 | | | | | |
| Not grad. H.S. | 32.0 | 28.6 | 26.1 | 12.4 | 1.0 |
| Grad. H.S. | 33.6 | 31.3 | 25.1 | 9.3 | 0.6 |
| Some post H.S. | 39.0 | 31.1 | 21.9 | 7.4 | 0.5 |
| College grad. | 44.4 | 30.7 | 18.6 | 5.5 | 0.8 |

*No response to the question.

**Race/Ethnicity**

At all ages, Blacks watched considerably more television than either Whites or Hispanics. Far higher percentages reported that they watched over four hours of television daily (Table 6). At age 9, about one-quarter of the Whites and Hispanics and over one-third of the Blacks indicated they watched more than four hours of television a day. Data for 9-year-olds must be considered somewhat cautiously, however, since fairly large proportions of Black and Hispanic students -- 15 and 18 percent, respectively — did not indicate how much time they spent watching TV.

At age 13, 30 percent of Blacks, 22 percent of Hispanics and 15 percent of Whites watched over four hours of television daily. Among 17-year-olds, percentages reporting heavy television viewing (greater than four hours) were 18 percent, 9 percent and 7 percent for Black, Hispanic and White respondents, respectively, reflecting the generally lower television viewing habits of older students. It is noteworthy that for teenagers the proportion of Blacks who were heavy television watchers was about double that of Whites. Viewing patterns for Whites and Hispanics were much more similar, with Hispanics slightly more avid television fans.

TABLE 6: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by racial/ethnic background.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| White | 21.0% | 24.5% | 26.4% | 24.0% | 4.0% |
| Black | 17.4 | 16.9 | 16.1 | 34.6 | 15.0 |
| Hispanic | 18.9 | 18.9 | 18.9 | 24.9 | 18.4 |
| Age 13 | | | | | |
| White | 23.2 | 29.6 | 30.9 | 15.0 | 1.3 |
| Black | 17.1 | 19.8 | 30.8 | 29.7 | 2.4 |
| Hispanic | 19.2 | 25.8 | 32.0 | 21.5 | 1.5 |
| Age 17 | | | | | |
| White | 39.8 | 31.5 | 21.3 | 6.6 | 0.8 |
| Black | 26.9 | 24.5 | 28.6 | 18.5 | 1.4 |
| Hispanic | 38.0 | 29.3 | 23.0 | 8.6 | 1.1 |

*No response to the question.

**Grade in School**

Students in the modal grade for their age (the grade in which the majority of students their age are enrolled) typically watched less television than those enrolled below the modal grade (Table 7). The modal grade for 9-year-olds is the fourth grade; for 13-year-olds, the eighth grade; and for 17-year-olds, the eleventh grade. Although it appears that third graders are less likely to be heavy television viewers than fourth graders, the data for third graders should be regarded with some caution, since 14 percent of these students did not report how much time they spent watching television. For 17-year-olds, the pattern extended to those above the modal grade, with 17-year-olds in the 12th grade watching the least television for their age group. Very few of the younger students are enrolled above the modal grade for their age; thus, data on these students are not available.

TABLE 7: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by grade in school.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| 1 grade below modal (3d) | 20.8% | 21.9% | 20.1% | 22.8% | 14.4% |
| Modal grade (4th) | 20.4 | 23.8 | 26.5 | 26.8 | 2.4 |
| Age 13 | | | | | |
| 1 grade below modal (7th) | 22.2 | 25.7 | 31.3 | 19.2 | 1.6 |
| Modal grade (8th) | 22.3 | 28.9 | 30.9 | 16.4 | 1.4 |
| Age 17 | | | | | |
| 1 grade below modal (10th) | 31.8 | 28.0 | 26.3 | 12.8 | 1.1 |
| Modal grade (11th) | 38.9 | 31.1 | 21.7 | 7.6 | 0.8 |
| 1 grade above modal grade (12th) | 43.5 | 30.6 | 19.8 | 5.1 | 1.0 |

*No response to the question.

**Public/Private School Attendance**

Public school children watched slightly more television than those in private schools (Table 8). This is to be expected since the socioeconomic status of private school students is typically higher than that of public school pupils and youngsters from higher socioeconomic groups tend to watch less television.

TABLE 8: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by public/private school attendance.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Public | 20.5% | 22.7% | 24.3% | 25.6% | 6.9% |
| Private | 20.0 | 26.5 | 25.7 | 25.5 | 2.3 |
| Age 13 | | | | | |
| Public | 22.0 | 27.7 | 30.9 | 17.9 | 1.5 |
| Private | 24.5 | 31.1 | 30.5 | 12.8 | 1.1 |
| Age 17 | | | | | |
| Public | 37.8 | 30.4 | 22.6 | 8.4 | 0.9 |
| Private | 42.2 | 32.4 | 19.3 | 5.6 | 0.6 |

*No response to the question.

**Academic Factors**

Some insights into the relationship between reading skills and television watching can be gained by examining the television habits of the highest and lowest performing students on the reading assessment. Each age group was divided into achievement quartiles. As seen in Table 9, at all ages those in the lowest quartile (bottom 25%) watched more television than those in the highest quartile (top 25%).

Viewing patterns of high achieving 9-year-olds resemble those of 13-year-olds nationwide; the majority of these 9-year-olds watched either one to two or three to four hours of television. By age 17, high achievers were much less likely than low achievers to be found in front of the set -- 43 percent of the high achievers watched less than one hour a day compared with 32 percent of the low achievers.

TABLE 9: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by achievement class.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| Age 9 | | | | | |
| Low | 19.7% | 18.3% | 15.9% | 25.7% | 20.4% |
| Mid-low | 19.6 | 22.7 | 24.2 | 29.6 | 4.0 |
| Mid-high | 20.4 | 24.8 | 27.0 | 26.8 | 1.0 |
| High | 22.0 | 26.6 | 30.9 | 20.1 | 0.4 |
| Age 13 | | | | | |
| Low | 19.4 | 22.3 | 30.1 | 25.7 | 2.5 |
| Mid-low | 21.2 | 26.8 | 31.9 | 18.8 | 1.2 |
| Mid-high | 22.2 | 30.0 | 33.0 | 13.8 | 1.1 |
| High | 26.2 | 33.2 | 28.6 | 11.0 | 1.0 |
| Age 17 | | | | | |
| Low | 32.1 | 27.2 | 25.9 | 13.5 | 1.3 |
| Mid-low | 36.4 | 30.9 | 23.5 | 8.5 | 0.8 |
| Mid-high | 40.9 | 31.5 | 21.0 | 6.0 | 0.6 |
| High | 43.3 | 32.6 | 18.8 | 4.6 | 0.6 |

*No response to the question.

## Summary

Age is a major factor in determining how much television young people watch. Television is most popular with younger students, dropping considerably in importance as pupils move through their teenage years.

National Assessment data clearly substantiate results from other research studies, which indicate that youngsters from disadvantaged backgrounds tend to watch more television. NAEP findings show that residents of disadvantaged-urban areas, Blacks and those whose parents have less than a high school education are

more likely to watch over four hours of television daily than the nation as a whole regardless of age. At all ages, males are more avid television viewers than females.

Of particular interest are patterns of differences in television watching habits. Advantaged students typically exhibit the television habits of youngsters older than themselves, while disadvantaged students often follow patterns typically seen for students younger than themselves. This may reflect the fact that older students and those from more advantaged homes would be likely to have more options in ways of spending their time.

## CHAPTER 3

### Television Watching and Reading Achievement

To investigate the relationship between time spent watching television and reading achievement, National Assessment analyzed percentages of correct responses to reading comprehension items administered in the 1979-80 reading assessment. Reading items investigated both literal and inferential comprehension skills.

Achievement levels are described in terms of differences from the average national achievement. In the tables that follow, positive numbers indicate the number of percentage points by which a group surpasses the nation; negative numbers describe percentage point difference below the nation. The average percent correct across age levels should not be compared, since the item sets to which each age group responded were not of equivalent difficulty. Comparisons of differences between the nation and various groups can be made across ages and population groups.

Television has a differential relationship to reading achievement at different ages (Table 10). Over four hours of daily watching proved detrimental at all ages. However, 9-year-olds' reading comprehension improved as time spent watching television increased up to the four hour mark. Even heavy television watchers among 9-year-olds averaged less than 2 percentage points below the nation. Reading comprehension peaked for 13-year-olds who watched one to two hours of television, with those who watched less than an hour a day also above the nation in reading skills. Only for 17-year-olds did television have a direct negative relationship to reading performance -- the more television watched, the lower reading comprehension.

Television in moderation may well have a beneficial effect for younger students -- with moderation defined differently for different age groups. Television may well serve to expand 9-year-olds' horizons. By age 17, however, television appers to be a limiting factor.

TABLE 10: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television.

| | Amount of Television Watched | | | |
|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | | | | |
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | 1.5 | 3.0 | 5.2 | -1.7 |
| Age 13 (Mean = 74.0%) | | | | |
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | 2.2 | 3.0 | 0.2 | -6.9 |
| Age 17 (Mean = 79.1%) | | | | |
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | 2.3 | 1.3 | -2.2 | -8.1 |

## Background Characteristics

Data from National Assessment and other studies show that achievement levels differ considerably with students' background -- students from advantaged backgrounds typically do better academically, while those from disadvantaged environments often perform below national levels. Data presented in Chapter 2 show that disadvantaged students also tend to watch above average amounts of television.

What is the relationship between reading achievement and television viewing? Is it the same for advantaged and disadvantaged students? Results for population variables reported upon by National Assessment are described below.

In the following tables, the figures labelled "nation" across the tables describe differences from the national average for the various categories of time spent watching television; figures labeled "nation" reading down the table describe differences from the nation for each population group as a whole.

**Sex**

At all three ages, females were better readers than males, although the difference grew smaller with age (Table 11). For 9-year-olds, performance of both sexes improved as television viewing increased up to four hours; however, in each category boys' reading performance trailed that of girls. Thirteen-year-old girls watching either under an hour or one to two hours of television showed the highest reading levels, while for boys one to two hours of television appeared to be the optimal amount. For both males and females at age 17, performance tended to drop off with increased television viewing.

TABLE 11: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by sex.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Male | -2.5 | -1.2 | 1.0 | 3.1 | -3.0 |
| Female | 2.5 | 3.9 | 4.7 | 7.3 | -0.2 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Male | -2.1 | -0.9 | 1.5 | -1.6 | -7.8 |
| Female | 2.1 | 4.5 | 4.3 | 2.2 | -5.8 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Male | -1.4 | 0.6 | 0.3 | -3.4 | -8.4 |
| Female | 1.4 | 3.6 | 2.3 | -0.8 | -7.7 |

**Region**

Patterns of reading performance by amount of television watched did not vary significantly by region (Table 12). Those who watched over four hours of television were the poorest performers in each region. Achievement levels followed national patterns for each region, with the Southeast generally faring least well in reading for each category of time spent watching television.

TABLE 12: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by region of the country.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | | | | | |
| | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Northeast | 2.6 | 4.4 | 4.9 | 7.8 | -0.4 |
| Southeast | -2.2 | -1.5 | 0.2 | 4.0 | -2.8 |
| Central | 1.1 | 2.5 | 3.8 | 4.5 | 0.0 |
| West | -1.2 | 1.2 | 2.9 | 4.8 | -3.2 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Northeast | 1.4 | 2.7 | 4.0 | 1.9 | -4.0 |
| Southeast | -2.7 | -1.5 | 1.0 | -2.1 | -8.9 |
| Central | 2.3 | 4.9 | 5.2 | 2.1 | -6.3 |
| West | -0.9 | 2.4 | 1.6 | -1.1 | -8.4 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Northeast | 0.2 | 2.1 | 1.7 | -1.8 | -7.9 |
| Southeast | -2.0 | -0.3 | 0.7 | -3.8 | -9.1 |
| Central | 0.5 | 2.9 | 1.0 | -1.7 | -5.4 |
| West | 1.1 | 3.7 | 1.8 | -1.4 | -9.9 |

**Type of Community**

Nine-year-olds in each type of community who watched three to four hours of television daily displayed the highest reading performance (Table 13). Performance of rural students was uniformly lower when less or more television was watched. Lowest in reading skills among disadvantaged-urban 9-year-olds were those who watched the least television; those who watched over four hours of television showed the second-highest achievement levels for their community type. Although advantaged-urban students also did best when watching three to four hours of television, for this group those who watched the most television displayed lowest reading skills.

Among 13-year-olds, those who watched over four hours of television were the worst readers in their community type. Optimum performance for rural students came with three to four hours of television a day, for disadvantaged-urban students with one to two hours of viewing and for advantaged-urban students with less than one. It is interesting to note that the achievement pattern for advantaged-urban 13-year-olds with regard to television and reading achievement was similar to that for 17-year-olds overall.

For both advantaged- and disadvantaged-urban 17-year-olds, reading comprehension was highest for those who watched the least television and performance declined as amount of television watched increased. Rural students, however, did best when they watched one to two hours of television. As with 13-year-olds, those who watched over four hours of television a day were the lowest-performing readers in their community type.

Rural students at ages 13 and 17 showed their highest performances when watching slightly more television than highest-performing students from the other two community types. At age 9, the relationship of television watching and achievement clearly differs for advantaged- and disadvantaged-urban students with heavy (over four hours) television viewing seeming to help the disadvantaged-urban students but not exercising a beneficial effect for advantaged-urban youngsters.

These findings may suggest that for students with relatively less environmental stimulation (younger students and particularly those from disadvantaged-urban and rural areas) more television watching can be beneficial, at least to a point.

TABLE 13: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by type of community.

| | | Amount of Television watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | | | | | |
| | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Rural | -2.5 | -1.9 | -1.9 | 3.6 | -1.9 |
| Disad. urban | -14.7 | -15.5 | -14.2 | -8.5 | -10.3 |
| Advan. urban | 9.8 | 10.8 | 11.2 | 13.0 | 5.0 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Rural | -3.9 | -2.9 | -2.0 | -1.2 | -11.5 |
| Disad. urban | -9.8 | -7.8 | -6.9 | -7.9 | -14.9 |
| Advan. urban | 8.5 | 10.8 | 9.7 | 7.5 | 3.0 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Rural | -0.7 | 0.3 | 1.4 | -1.8 | -7.7 |
| Disad. urban | -10.4 | -8.3 | -9.6 | -11.1 | -14.3 |
| Advan. urban | 5.9 | 7.4 | 6.2 | 4.2 | -2.5 |

**Parental Education**

Table 14 shows that for 9-year-olds highest reading comprehension is associated with watching three to four hours of television a day in each parental education group. Nine-year-olds whose parents had not graduated from high school exhibited their lowest reading performance when watching less than two hours of television a day. Watching over four hours a day resulted in the second-best reading achievement for this group. Conversely, those whose parents

had education beyond high school showed lowest reading performance when watching over four hours of television a day.

Among 13- and 17-year-olds, within each parental education group lowest levels of reading comprehension were associated with over four hours of television watching a day. A modicum of one to two hours a day was associated with highest reading performance for 13-year-olds in most parental education groups and under an hour with best performance for 17-year-olds for all but those whose parents had least education. This group showed better reading performance with one to two hours of television watching.

These findings in large part parallel those for type of community. Television appears beneficial to 9-year-olds and particularly to 9-year-olds from disadvantaged circumstances. Nine-year-olds from more advantaged circumstances do not do as well when watching television extensively (over four hours a day). The highest achievers among 13-year-olds typically watched one to two hours a day, while for 17-year-olds, less television is generally better as far as reading skills are concerned.

TABLE 14: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by level of parental education.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | | | | | |
| | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Not grad. H.S. | -9.1 | -9.8 | -8.0 | -1.4 | -3.9 |
| Grad. H.S. | 0.9 | 0.8 | 2.3 | 5.8 | 1.2 |
| Some post H.S. | 4.4 | 3.0 | 9.2 | 9.4 | 1.4 |
| College grad. | 2.9 | 5.5 | 6.1 | 7.1 | 0.0 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Not grad. H.S. | -10.4 | -9.4 | -8.7 | -9.1 | -14.0 |
| Grad. H.S. | -0.9 | 0.6 | 1.2 | -0.5 | -4.6 |
| Some post H.S. | 4.5 | 6.3 | 6.0 | 4.5 | -0.2 |
| College grad. | 4.7 | 7.0 | 7.5 | 4.3 | -4.1 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Not grad. H.S. | -8.6 | -7.4 | -6.9 | -8.7 | -14.0 |
| Grad. H.S. | -2.2 | -0.2 | -1.2 | -3.8 | -7.8 |
| Some post H.S. | 3.4 | 4.7 | 4.5 | 1.1 | -0.8 |
| College grad. | 4.6 | 6.3 | 5.6 | 2.1 | -5.6 |

**Race**

Within each racial/ethnic group, 9-year-olds who watched three to four hours of television daily were the best readers (Table 15). However, television viewing in excess of four hours had a differential relationship with achievement. Lowest performance among White 9-year-olds was seen for those who watched more than four hours of television daily, while Blacks who watched television to that extent showed the second-highest achievement for their group. Reading skills were lowest for Black 9-year-olds who watched less than two hours of television a day. For Hispanic 9-year-olds, watching very much or very little television appeared about equally detrimental.

At age 13, reading achievement levels for Whites and Hispanics began to fall off noticeably when viewing exceeded one to two hours. For Blacks this drop did not take place until viewing time exceeded three or four hours per day, a pattern similar to that seen for 9-year-olds nationally. Lowest performance for 13-year-olds in each racial/ethnic group occurred for those watching over four hours of television daily.

Among 17-year-olds, highest reading performance was associated with least television watching for each racial/ethnic group. Seventeen-year-olds from nearly all racial/ethnic groups tended to do less well in reading as television time increased, with the exception of 17-year-old Hispanics who watched more than four hours of television. Among 17-year-olds, the amount of television watched appeared to have less of an impact for Blacks than for Hispanics or Whites; differences in achievement among the various categories of television viewing were smaller for Blacks than the other two racial/ethnic groups.

TABLE 15: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by racial/ethnic background.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| White | 3.3 | 4.5 | 5.6 | 7.1 | 1.0 |
| Black | -13.8 | -13.8 | -13.4 | -8.4 | -9.1 |
| Hispanic | -13.3 | -12.5 | -6.8 | -3.9 | -12.8 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| White | 3.3 | 5.2 | 5.5 | 3.0 | -2.6 |
| Black | -14.3 | -15.8 | -11.6 | -11.7 | -16.8 |
| Hispanic | -11.4 | -9.8 | -9.1 | -10.9 | -15.3 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| White | 2.9 | 4.4 | 3.8 | 1.3 | -4.0 |
| Black | -16.6 | -15.0 | -15.6 | -17.5 | -17.9 |
| Hispanic | -8.0 | -5.4 | -8.1 | -10.0 | -8.2 |

**Grade in School**

For all three age groups, those watching television more than four hours a day exhibited the lowest levels of reading comprehension for their grade level (Table 16). For those enrolled a grade below the modal grade (the grade in which most students that age are enrolled), highest reading comprehension was evidenced among students watching a moderate amount of television: three to four hours a day for 9-year-olds, one to two hours a day for 13- and 17-year-olds. For those at the modal grade level, highest levels of reading

performance was associated with three to four hours per day of television for 9-year-olds and less than one hour per day among 13- and 17-year-olds.

These data provide further evidence that among teenagers highest performance for groups that typically do not read as well is associated with slightly higher levels of television watching than for groups that typically show better reading skills. Among 9-year-olds, watching three to four hours a day seems to result uniformly in the best reading performance.

TABLE 16: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by grade in school.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| | Nation | < 1 hr | 1–2 hrs | 3–4 hrs | > 4 hrs |
| **Age 9 (Mean = 58.2%)** | | | | | |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| 1 grade below modal (3d) | -13.1 | -12.2 | -9.2 | -6.0 | -13.0 |
| Modal grade (4th) | 5.6 | 7.3 | 7.5 | 8.6 | 2.2 |
| **Age 13 (Mean = 74.0%)** | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| 1 grade below modal (7th) | -9.3 | -7.9 | -5.1 | -8.3 | -16.3 |
| Modal grade (8th) | 4.1 | 6.6 | 6.2 | 3.7 | -1.7 |
| **Age 17 (Mean = 79.1%)** | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| 1 grade below modal (10th) | -14.9 | -13.6 | -12.8 | -15.7 | -20.7 |
| Modal grade (11th) | 2.3 | 4.0 | 3.2 | 0.9 | -4.6 |
| 1 grade above modal (12th) | 5.4 | 7.0 | 5.9 | 3.1 | -3.6 |

**Public/private school**

Watching over fours hours of television a day was associated with lowest reading performance for students in both public and private schools at ages 9, 13 and 17 (Table 17). While 9-year-olds in public schools showed highest reading skills watching three to four hours of television, 9-year-olds in private schools displayed highest reading performance with less television time (one to two hours), a pattern more like that seen for 13-year-olds nationally. Highest reading levels for 13-year-olds attending public school were associated with watching one to two hours of television, while among private school 13-year-olds and all 17-year-olds, reading comprehension was highest with the lowest levels of television viewing. These patterns are similar to those seen for other indicators of socioeconomic status. Since many private schools draw more students from higher socioeconomic status levels than public schools, variables other than the type of school attended are probably far more important in accounting for these observed differences.

TABLE 17: Mean percentage differences from the nation in reading comprehension of 9-, 13- and 17-year-olds watching various amounts of television by public/private school attendance.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 9 (Mean = 58.2%) | | | | | |
| | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Public | -0.8 | 0.8 | 2.1 | 4.7 | -2.4 |
| Private | 7.3 | 7.8 | 10.1 | 9.6 | 4.7 |
| Age 13 (Mean = 74.0%) | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Public | -1.0 | 1.0 | 2.2 | -0.6 | -7.8 |
| Private | 8.0 | 10.6 | 9.1 | 6.7 | 3.7 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Public | -0.5 | 1.8 | 0.8 | -2.8 | -8.4 |
| Private | 5.8 | 6.8 | 6.4 | 5.0 | -2.7 |

## Summary

The National Assessment results indicate that the relationship of television watching and reading skills depends heavily on age and population group membership. For 9-year-olds, in each population group studied highest levels of reading performance almost uniformly were found among those who watched television three to four hours a day. For disadvantaged 9-year-olds, watching over four hours of television did not appear to be detrimental -- in fact quite the opposite was true. In the case of 9-year-old Blacks, disadvantaged-urban residents and students whose parents had little education, heavy television watchers (over four hours) were on the average better readers than those who watched less than two hours. For more advantaged youngsters, however, reading skills fell off sharply with more than four hours of television viewing.

Among 13- and 17-year-olds, reading skills in each population group were lowest among students who viewed over four hours of television daily. Typically highest reading performance for 13-year-olds was associated with one to two hours of television watching, although rural students did best with three to four hours and Blacks' performance was about the same for those watching one to two and three to four hours. For several more advantaged groups of 13-year-olds -- advantaged-urban students, private school pupils and those enrolled in the modal grade for their age -- reading performance was highest for those who watched less than one hour of television daily.

By age 17, it was almost universally true that highest levels of reading comprehension were associated with under an hour of television watching a day. Achievement levels for most 17-year-olds became lower as television viewing increased. The only significant exceptions were Southeastern residents and those in the grade below the modal grade. For these groups of 17-year-olds, highest reading performance was associated with one to two hours of television.

The amount of television viewed associated with highest reading performance drops as students grow older: for 9-year-olds the optimum time appears to be three to four hours; for 13-year-olds, one to two hours; and for 17-year-olds, less than an hour. Slightly higher amounts of television than the optimum are frequently related to higher performance for members of disadvantaged groups, while higher amounts for members of advantaged groups generally are related to lower performance.

## CHAPTER 4

### Spare Time Reading, Homework, Television Watching and Reading Skills

In addition to television viewing, National Assessment surveyed the amounts of time students spent on spare time reading and, for teenagers, on homework. Analyses provide indications of whether time spent watching television competes with the more academically oriented pursuits of reading and homework and also describe the relationship of these activities to television watching and reading skills.

To determine the extent of homework and leisure time reading done, students were asked how much time they spent on these activities the previous day. As in earlier chapters, percentages reading across tables describing television watching time indicate the percentage of a particular group watching television for the specified length of time. Tables presenting reading achievement show differences, in percentage points, between the various groups and the nation. Positive figures indicate distance above the nation and negative numbers, the distance below national levels.

### Spare Time Reading

As Table 18 shows, 9-year-olds -- in addition to being the most devoted television fans -- were the age group most likely to read in their spare time. Forty percent of the youngest students read for an hour or more a day, while 26 percent of the 13-year-olds and 24 percent of the 17-year-olds did so. Close to three-quarters of the teenagers spent little or no time reading outside of school.

The National Assessment results indicate that the amount of time spent watching television was not differentially associated with the amount of time spent reading -- that is, heavy TV watchers were not necessarily light readers and light TV watchers were not necessarily heavy readers -- perhaps because students, on the average, spent so little time reading.

As Table 19 shows, 9-year-olds who read for one to two hours a day were the group most likely to watch three to four hours of television daily. Thirteen-year-olds who read for an hour or more a day were slightly more likely to watch under a hour of television per day. Seventeen-year-olds who read the least were also somewhat more inclined to watch the least television. Other activities, including employment, may be competing for their time.

TABLE 18: Percentages of 9-, 13- and 17-year-olds spending various amounts of time reading in their spare time.

| | Amount of Time Spent Reading | | | |
|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | > 2 hrs | NR* |
| Age 9 | 58.8% | 27.0% | 13.2% | 1.0% |
| Age 13 | 72.6 | 20.2 | 5.6 | 1.6 |
| Age 17 | 75.4 | 19.7 | 4.2 | 0.7 |

*No response to question.

At all three ages, there is a concentration of students who watched over four hours of television a day and also reported that they read for more than two hours. The amount of time involved suggests that these students may be reading and watching television at the same time or they may not be well aware of how much time they spend in various pastimes. Since relatively few teenagers read for over two hours, the proportion who both read for over two hours and watch more than four hours of television is quite small.

At all three ages, those who were moderate (one to two hours) spare time readers tended to show the best reading performance for each category of television viewing time (Table 20). Those 9- and 13-year-olds who watched television extensively (over four hours) and read for more than two hours exhibited the lowest performance; performance of 17-year-olds in this category was quite low as well. Undue weight should not be placed on this finding particularly for teenagers, since this group was quite small. This group may include slow readers or those who have difficulty in accurately estimating time spent reading.

Nine-year-olds who read a moderate amount (one to two hours) and watched what for 9-year-olds appears to be a moderate amount of television (three to four hours) displayed, on the average, the highest reading comprehension levels. Next in reading achievement were 9-year-olds who read one to two hours a day and watched television for one to two hours. Although for each category of spare time reading, those who watched over four hours of television exhibited the lowest reading achievement, those who reported they read over two hours a day often displayed lower levels regardless of time spent watching television. For 9-year-olds, a report of reading over two hours a day appeared to have a stronger association with lower reading skills than did the amount of television watched.

Among 13-year-olds, the highest reading performance was found for those who watched what is for 13-year-olds a moderate amount of television (one to two hours) and read a moderate amount (one to two hours). Second highest levels of

TABLE 19: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by time spent reading.

| | Amount of Television Watched | | | | |
|---|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
| **Time Spent Reading** | | | | | |
| **Age 9** | | | | | |
| Nation | 20.4 | 23.1 | 24.5 | 25.6 | 6.4 |
| Less than 1 hr | 21.4 | 25.2 | 26.6 | 26.2 | 0.6 |
| 1-2 hrs | 20.9 | 24.4 | 28.0 | 26.2 | 0.5 |
| Greater 2 hrs | 24.2 | 22.2 | 19.2 | 33.1 | 1.2 |
| **Age 13** | | | | | |
| Nation | 22.2 | 28.1 | 30.9 | 17.3 | 1.5 |
| Less than 1 hr | 21.9 | 28.5 | 31.8 | 17.6 | 0.2 |
| 1-2 hrs | 23.0 | 28.8 | 31.5 | 16.1 | 0.5 |
| Greater 2 hrs | 28.4 | 24.9 | 21.2 | 19.7 | 5.8 |
| **Age 17** | | | | | |
| Nation | 38.2 | 30.5 | 22.3 | 8.2 | 0.8 |
| Less than 1 hr | 39.1 | 31.0 | 21.8 | 8.0 | 0.1 |
| 1-2 hrs | 36.3 | 30.3 | 25.1 | 8.1 | 0.2 |
| Greater 2 hrs | 37.2 | 27.4 | 21.1 | 11.8 | 2.5 |

*No response to the question.

reading achievement were seen for those who read for one to two hours and watched under an hour of television. Thirteen-year-olds exhibited lowest reading performance when watching over four hours of television a day, regardless of how much they read.

Highest reading performance for 17-year-olds occurred among those who read for one to two hours a day and watched less than an hour of television, followed by those who read for over two hours but did not watch over an hour of television. Lowest performance occurred for those who watched over four hours of television a day, although even among this group those who read one to two hours held an advantage.

These findings are provocative in suggesting ways television viewing, reading practice, and reading comprehension are related. They suggest that these relationships vary by age. For all students, one to two hours of spare time reading a day appears to be associated with highest reading comprehension, but the youngest students appeared to benefit most when this was combined with three to four hours of television a day, the 13-year-olds, when combined with one to two hours of television and the 17-year-olds, when combined with under an hour of television time.

More spare time reading is not necessarily better. While one to two hours of reading appear beneficial, for most American youngsters reading more than two hours a day does not appear to be a realistic expectation given today's lifestyles. Some of those who report reading over two hours a day may be slow readers or may be unaware of how much time they actually spend. Television does appear to be of benefit to younger students, a beneficial effect that decreases as students grow older.

TABLE 20: Mean differences in achievement of 9-, 13- and 17-year-olds watching various amounts of television by time spent reading.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| **Age 9 (Mean = 58.2%)** | | | | | |
| | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 1.5 | 3.0 | 5.2 | -1.7 |
| Time Spent Reading | | | | | |
| Less than 1 hr | 2.3 | 1.8 | 2.4 | 5.6 | -0.2 |
| 1-2 Hrs | 3.9 | 3.8 | 5.9 | 7.6 | -0.9 |
| Greater 2 hrs | -3.8 | -2.4 | .5 | -2.9 | -7.5 |
| **Age 13 (Mean = 74.0%)** | | | | | |
| Time Spent Reading | | | | | |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Less than 1 hr | -0.1 | 1.8 | 2.5 | 0.1 | -7.0 |
| 1-2 hrs | 2.6 | 5.0 | 5.6 | 1.5 | -4.1 |
| Greater 2 hrs | -1.1 | 0.9 | 3.4 | 0.0 | -11.6 |
| **Age 17 (Mean = 79.1%)** | | | | | |
| Time Spent Reading | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Less than 1 hr | -0.8 | 1.5 | 0.5 | -3.4 | -9.0 |
| 1-2 hrs | 3.2 | 5.2 | 4.1 | 1.6 | -4.1 |
| Greater 2 hrs | 1.1 | 4.7 | 4.2 | -3.1 | -8.2 |

## Homework

Not only do few teenagers read in their spare time, but many do not appear to be spending time on homework either. Nine-year-olds were not asked about homework, since most would not do enough to provide meaningful data.

Table 24 shows percentages of teenagers engaging in various amounts of homework. Interestingly enough, fewer 17-year-olds than 13-year-olds do any homework at all. Thirty-six percent of the 13-year-olds and 44 percent of the 17-year-olds either had no homework assigned or did not do their assignments. Nearly a third of each age group did homework for an hour or more a day. Activities other than television, spare time reading or homework appear to be consuming substantial amounts of time for many 17-year-olds.

TABLE 24: Percentages of 9-, 13- and 17-year-olds spending various amounts of time doing homework.

| | Time Spent on Homework | | | | | |
|---|---|---|---|---|---|---|
| | None Assigned | Didn't Do | < 1 hrs | 1-2 hrs | > 2 hrs | NR |
| Age 13 | 29.6% | 6.0% | 32.6% | 23.8% | 7.3% | 0.7% |
| Age 17 | 31.5 | 12.8 | 23.5 | 22.4 | 9.2 | 0.7 |

*No response to the question.

Television viewing appears to compete to some extent with time spent on homework (Table 22). Of students with homework assignments, those spending the most time on homework spent the least time watching television at both ages. Seventeen-year-olds who did not do their assigned homework also were more likely to spend under an hour watching television; forty-three percent of this group watched less than an hour a day. These students may well have claims on their time such as employment or social life that prevent them from either watching television or doing homework. Among 13-year-olds who did not do their homework, however, the tendency was to watch more television; over half of this group watched three or more hours of television a day.

Among 13-year-olds, highest levels of reading comprehension were associated with completing one to two hours of homework, while for 17-year-olds, performance increased as time spent on homework increased (Table 23). Lowest performers among 13-year-olds were those who failed to do their assigned homework, but for 17-year-olds, lowest achievement occurred for those not assigned any homework. It may be that by age 17, schools with many low achieving students in effect give up and no longer assign them homework.

TABLE 22: Percentages of 9-, 13- and 17-year-olds watching various amounts of television by time spent doing homework.

| | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs | NR* |
|---|---|---|---|---|---|
| **Age 13** | | | | | |
| Nation | 22.2 | 28.1 | 30.9 | 17.3 | 1.5 |
| Time on Homework | | | | | |
| None assigned | 20.2 | 24.7 | 32.8 | 21.4 | 0.9 |
| Didn't do it | 22.3 | 22.2 | 28.6 | 25.3 | 1.6 |
| Less than 1 hr | 20.2 | 30.0 | 32.0 | 16.8 | 1.0 |
| Between 1-2 hrs | 23.6 | 32.3 | 30.8 | 12.7 | 0.6 |
| Greater than 2 | 37.2 | 26.5 | 22.5 | 13.2 | 0.7 |
| **Age 17** | | | | | |
| Nation | 38.2 | 30.5 | 22.3 | 8.2 | 0.8 |
| Time on Homework | | | | | |
| None assigned | 34.6 | 29.7 | 24.6 | 10.9 | 0.3 |
| Didn't do it | 43.0 | 26.6 | 20.4 | 9.5 | 0.4 |
| Less than 1 hr | 37.0 | 32.2 | 23.3 | 7.2 | 0.3 |
| Between 1-2 hrs | 38.0 | 33.6 | 22.1 | 6.1 | 0.2 |
| Greater than 2 | 49.6 | 29.2 | 16.4 | 4.6 | 0.1 |

When both homework and television watching were taken into consideration, 13-year-olds who watched moderate (one to two) hours of television and did one to two hours of homework showed the highest achievement levels, followed by those who did an equal amount of homework but watched under an hour of television. Performance was lowest for 13-year-olds who watched over four hours of television and had homework but didn't do it. The lowest performing readers for each category of homework done were those watching over four hours of television and the highest those watching one to two hours. One to two hours of homework seemed optimum regardless of the television watching category.

For 17-year-olds, television watching, homework and reading comprehension appeared to be directly related. Among 17-year-olds, the highest reading performance was found for those doing the most homework and watching the least television. Next in achievement were those doing over two hours of homework but watching somewhat more television. Lowest performers within each television watching category were those with no homework assigned; within each homework category, lowest performance was observed for those spending the most time on television.

TABLE 23: Mean differences in achievement of 9-, 13- and 17-year-olds watching various amounts of television by time spent doing homework.

| | | Amount of Television Watched | | | |
|---|---|---|---|---|---|
| Age 13 (Mean = 74.0%) | Nation | < 1 hr | 1-2 hrs | 3-4 hrs | > 4 hrs |
| Nation | | 2.2 | 3.0 | 0.2 | -6.9 |
| Time on Homework | | | | | |
| None assigned | -2.4 | -1.4 | 0.1 | -1.9 | -6.6 |
| Didn't do it | -5.2 | -2.4 | -1.7 | -2.2 | -13.1 |
| Less than 1 hr | 1.2 | 4.1 | 4.2 | 0.9 | -6.2 |
| Between 1-2 | 3.0 | 4.8 | 5.1 | 2.7 | -4.5 |
| Greater than 2 | 0.1 | 2.4 | 3.3 | -0.5 | -11.7 |
| Age 17 (Mean = 79.1%) | | | | | |
| Nation | | 2.3 | 1.3 | -2.2 | -8.1 |
| Time on Homework | | | | | |
| None assigned | -4.7 | -3.3 | -3.5 | -5.8 | -9.9 |
| Didn't do it | 0.8 | 2.3 | 3.0 | -0.6 | -8.3 |
| Less than 1 | 1.3 | 3.3 | 2.6 | -1.0 | -7.4 |
| Between 1-2 | 2.9 | 5.3 | 3.6 | 0.2 | -5.0 |
| Greater than 2 | 5.2 | 7.6 | 5.7 | 0.0 | -6.5 |

## Sex Differences in Reading and Homework Activities

There are noteworthy differences among males and females in spare time reading and homework participation. These differences may have a bearing on the observed differences in male and female reading performance. Table 25 shows the differences in spare time reading done by boys and girls. The difference is largest for 9-year-olds and shrinks somewhat for teenagers, in line with the fact that differences in reading skills are larger at age 9 than for older students. It has not been established whether girls like to read more because they are better readers or whether they are better readers because they read more. Some combination of these factors may account for girls' superior reading skills.

TABLE 25: Percentages of 9-, 13- and 17-year-olds doing various amounts of spare time reading by sex

| | Amount of Time Spent Reading | | | |
|---|---|---|---|---|
| | < 1 hr | 1-2 hrs | >2 hrs | NR* |
| Age 9 | | | | |
| Males | 62.9% | 23.5% | 12.3% | 1.3% |
| Females | 54.7 | 30.4 | 14.1 | 0.8 |
| Age 13 | | | | |
| Males | 75.6 | 17.5 | 5.0 | 1.9 |
| Females | 69.7 | 22.8 | 6.2 | 1.3 |
| Age 17 | | | | |
| Males | 78.2 | 17.8 | 3.2 | 0.8 |
| Females | 72.6 | 21.7 | 5.1 | 0.6 |

*No response to the question.

Data on homework likewise show that girls are much more attentive to homework than boys (Table 27). Both 13- and 17-year-old girls spent more time on homework, and the difference widened with age. For 13-year-olds, 7.5 percentage points separated the numbers of girls and boys doing an hour or more of homework a day; by age 17, the difference increased to 9.8 percentage points. Since the gap between the sexes in reading skills narrows as students get older, it would seem that amount of homework done does not have a direct relationship to reading performance for males and females.

TABLE 27: Percentages of 9-, 13- and 17-year-olds doing various amounts of homework by sex.

| | | Time Spent on Homework | | | | |
|---|---|---|---|---|---|---|
| | None Assigned | Didn't Do | < 1 hrs | 1-2 hrs | > 2 hrs | NR* |
| Age 13 | | | | | | |
| Males | 31.8% | 7.2% | 32.8% | 20.8% | 6.5% | 0.8% |
| Females | 27.5 | 4.7 | 32.4 | 26.7 | 8.1 | 0.6 |
| Age 17 | | | | | | |
| Males | 33.9 | 15.5 | 23.3 | 19.2 | 7.5 | 0.7 |
| Females | 29.1 | 10.0 | 23.8 | 25.5 | 11.0 | 0.6 |

*No response to the question.

## Summary

Reading achievement appears to be related to time spent on spare time reading and homework. At all ages those who read for one to two hours in their spare time typically showed higher reading levels, as did 13-year-olds completing one to two hours of homework and 17-year-olds doing more than two hours of homework.

Spare time reading and television do not appear to compete for most students' time, largely because very few teenagers read for more than an hour a day. Nine-year-olds who read for one to two hours daily appear to be able to manage both activities.

Television and homework may compete for some students' time. Teenagers who did less homework tended to watch more television. The lone exception was 17-year-olds who were assigned homework but did not do it. This group tends to watch less television than their peers; other activities such as outside employment or social activities may be competing for their attention.

Highest reading performance was typically associated with one to two hours of spare time reading and three to four hours of television for 9-year-olds, one to two hours of television for 13-year-olds and under an hour of television for 17-year-olds. For 13-year-olds, one to two hours of television and one to two hours of homework a day were associated with highest levels of reading performance. Seventeen-year-olds were the only age group that appeared to exhibit a direct relationship between reading comprehension and amounts of television and homework. For these students, those doing the most homework and watching the least television displayed the highest reading performance levels.

TABLE 27: Percentages of 9-, 13- and 17-year-olds doing various amounts of homework by sex.

| | | Time Spent on Homework | | | | |
|---|---|---|---|---|---|---|
| | None Assigned | Didn't Do | < 1 hrs | 1-2 hrs | > 2 hrs | NR* |
| Age 13 | | | | | | |
| Males | 31.8% | 7.2% | 32.8% | 20.8% | 6.5% | 0.8% |
| Females | 27.5 | 4.7 | 32.4 | 26.7 | 8.1 | 0.6 |
| Age 17 | | | | | | |
| Males | 33.9 | 15.5 | 23.3 | 19.2 | 7.5 | 0.7 |
| Females | 29.1 | 10.0 | 23.8 | 25.5 | 11.0 | 0.6 |

*No response to the question.

## Summary

Reading achievement appears to be related to time spent on sparetime reading and homework. At all ages those who read for one to two hours in their spare time typically showed higher reading levels, as did 13-year-olds completing one to two hours of homework and 17-year-olds doing more than two hours of homework.

Spare time reading and television do not appear to compete for most students' time, largely because very few teenagers read for more than an hour a day. Nine-year-olds who read for one to two hours daily appear to be able to manage both activities.

Television and homework may compete for some students' time. Teenagers who did less homework tended to watch more television. The lone exception was 17-year-olds who were assigned homework but did not do it. This group tends to watch less television than their peers; other activities such as outside employment or social activities may be competing for their attention.

Highest reading performance was typically associated with one to two hours of spare time reading and three to four hours of television for 9-year-olds, one to two hours of television for 13-year-olds and under an hour of television for 17-year-olds. For 13-year-olds, one to two hours of television and one to two hours of homework a day were associated with highest levels of reading performance. Seventeen-year-olds were the only age group that appeared to exhibit a direct relationship between reading comprehension and amounts of television and homework. For these students, those doing the most homework and watching the least television displayed the highest reading performance levels.

The lowest reading performances were turned in by those students at all ages who both watched the most television (over four hours) and read for over two hours. With respect to homework, lowest reading performance among 13-year-olds occurred for those who did not do their homework and watched the highest levels of television, and among 17-year-olds for those who watched the highest levels of television and were not assigned any homework.

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## APPENDIX A

### The Data Base and Its Limitations

This paper is based upon information gathered in the 1979-80 national reading and literature assessment, the technical details of which are explained in NAEP report 11-RL-40, Procedural Handbook: 1979-80 Reading and Literature Assessment (1981). This paper is based upon the responses of 21,208 9-year-olds, 30,488 13-year-olds and 25,551 17-year-olds to questions about their backgrounds and to a wide range of items probing their reading comprehension skills.

Nine-year-olds responded to 130 reading comprehension items; 13-year-olds to 156 items; and 17-year-olds to 122. The reading materials upon which the exercises were based ran the gamut from short, simple expository passages to stories and poems. The exercises probed students' comprehension of the simplest words as well as of such complex features of text as mood, tone and character.

Students were categorized according to their membership in a number of NAEP reporting groups: racial/ethnic group, region of the country lived in, sex, type of community the students' school served, grade, parents' levels of education, achievement quartile and attendance at public or private schools. These categories are defined in Appendix B. Some of the categories are based upon "self-report" data, and readers should keep in mind the fact that students, especially 9-year-olds, may not always know such things as their parents' levels of education.

Details about the stratified multistage national sample of students upon which population groups and the findings are based appear in the procedural handbook for the reading and literature assessment mentioned above. Students who speak or read no English are excluded from National Assessment samples because they are unable to understand assessment materials. The 17-year-olds in this assessment included only those attending school.

## APPENDIX B

### Definitions of National Assessment Reporting Groups

In addition to reporting results for all 9-, 13-, and 17-year-old students in the United States, National Assessment reports results for a number of population subgroups. Definitions of the key subgroups follow.

Region

The country has been divided into four regions: Northeast, Southeast, Central and West.
(MAP)

Sex

Results are reported for males and females.

Race

Results are presented for Blacks, Whites and Hispanics.

Level of Parental Education

Four categories of parental-education levels are defined by National Assessment, based on students' reports. These categories are: (1) those whose parents did not graduate from high school, (2) those who have at least one parent who graduated from high school, (3) those who have at least one parent who has had some post-high-school education, and (4) those who have at least one parent who graduated from college.

Type of Community

Communities in this category are defined by an occupational profile of the area served by a school as well as by the size of the community in which the school is located. This reporting category excludes about two-thirds of the respondents who do not fall into the classifications listed above. Results for the excluded two-thirds are not reported because their performance is similar to that of the nation.

Advantaged-urban communities. Students in this group attend schools in or around cities having a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

Disadvantaged-urban communities. Students in this group attend schools in or around cities having a population greater than 200,000 where a relatively high proportion of the residents are on welfare or are not regularly employed.

Extreme-rural communities. Students in this group attend schools in areas with a population under 10,000 where many of the residents are farmers or farm workers.

Grade in School

Results are categorized for 9-year-olds in the third or fourth grade; 13-year-olds in the seventh or eighth grade; and 17-year-olds in the tenth, eleventh or twelfth grade. For 9-year-olds, the modal grade (the grade in which most students at an age are enrolled) is the fourth grade; for 13-year-olds, the eighth grade; and for 17-year-olds, the eleventh grade. Approximately 75 percent of the students at each age are enrolled in the modal grade.

Achievement Class

The achievement class variable places each respondent at a given age into a category based on the respondent's estimated standing in the population in terms of achievement on a particular assessment. The classes are defined as follows:

Low : The lowest quarter (students in the lowest 25 percent of the population in achievement).
Mid-low : The next-to-lowest quarter (achieve higher than 25 percent and lower than 50 percent of the population).
Mid-high: The next-to-highest quarter (achieve higher than 50 percent and lower than 25 percent of the population).
High : The highest quarter (students in the upper 25 percent of the population on achievement).

The measure of achievement for an individual is the person's mean percent correct for a particular subject area. The mean percent correct for an individual is the ratio of the number of correct responses over the number of items.